

#### **405 KAR 16:160. Coal mine waste dams and impoundments.**

RELATES TO: KRS 151.100, 151.250(3), 350.425, 30 C.F.R. Parts 730-733, 735, 816.84, 917, 30 U.S.C. 1253, 1255, 1265

STATUTORY AUTHORITY: KRS 350.028, 350.465, 30 C.F.R. Parts 730-733, 735, 816.84, 917, 30 U.S.C. 1253, 1255, 1265

NECESSITY, FUNCTION, AND CONFORMITY: KRS 350.028(2), (5), 350.151(1), and 350.465(2) authorize the cabinet to promulgate administrative regulations relating to surface and underground coal mining operations. This administrative regulation establishes requirements for coal mine waste dams and impoundments for surface mines. This administrative regulation differs from 30 CFR 816.84.

(1) Section 3(1)(b) of this administrative regulation includes detailed requirements for principal spillways in impoundments that do not have an open channel emergency spillway.

(2) Section 3(1)(c) of this administrative regulation requires a minimum freeboard of three (3) feet that is not included in the federal regulation. This is necessary to ensure the safety of an impounding structure that may be susceptible to erosion if overtopping occurs.

Section 1. General Requirements. (1) This administrative regulation applies to dams and impoundments, constructed of coal mine waste or intended to impound coal mine waste, that were completed or are to be completed after August 3, 1977.

(2) Coal mine waste shall not be used in the construction of dams and impoundments unless it has been demonstrated to the cabinet that the stability of the structure conforms with the requirements of Section 3(1) of this administrative regulation. It shall also be demonstrated that the use of coal mine waste will not have a detrimental effect on downstream water quality or the environment due to acid seepage through the dam or impoundment. All demonstrations shall be submitted to and approved by the cabinet.

(3) An impounding structure constructed of coal mine waste or intended to impound coal mine waste shall not be retained permanently as part of the approved postmining land use.

Section 2. Site Preparation. Before coal mine waste is placed at a dam or impoundment site:

(1) All trees, shrubs, grasses, and other organic material shall be cleared and grubbed from the site, and all combustible materials shall be removed and disposed of or stockpiled in accordance with the requirements of this chapter; and

(2) Surface drainage that may cause erosion to the dam or the impoundment features, whether during construction or after completion, shall be diverted away from the dam or impoundment by diversion ditches that comply with the requirements of 405 KAR 16:080, Section 1. Adequate outlets for discharge from these diversions shall be in accordance with 405 KAR 16:060, Section 3. Diversions that are designed to divert drainage from the upstream area away from the impoundment area shall be designed to carry the peak run-off from a 100-year, six (6) hour precipitation event. Twenty-four (24) hours may be used in lieu of six (6) hours for the duration of the 100-year design precipitation event in this subsection. The diversion shall be maintained to prevent blockage, and the discharge shall be in accordance with 405 KAR 16:060, Section 3.

Section 3. Design and Construction. (1) The design of each dam and impoundment constructed of coal mine waste or intended to impound coal mine waste shall comply with the requirements of 405 KAR 16:100, including the certification requirements thereof, modified as follows:

(a) An impounding structure constructed of coal mine waste or intended to impound coal mine waste that meets the criteria of 30 CFR 77.216(a) shall have sufficient spillway capacity to safely pass, adequate storage capacity to safely contain, or a combination of storage capacity and spillway

capacity to safely control, the probable maximum precipitation of a six (6) hour precipitation event. The cabinet may require a duration longer than six (6) hours if safety concerns warrant a longer time period.

(b) An impounding structure with a drainage area of ten (10) square miles or less that does not have an open channel emergency spillway shall have a closed conduit principal spillway that shall meet the requirements of this paragraph. The impounding structure shall have sufficient storage capacity available to store the entire runoff from the probable maximum precipitation event while maintaining the required freeboard against overtopping, disregarding flow through the principal spillway.

1. The spillway shall have a trash rack designed to provide positive protection against clogging of the spillway at all operating levels, and an elbow designed to facilitate the passage of trash;

2. The conduit shall be large enough to pass the routed freeboard hydrograph peak discharge while maintaining the required freeboard against overtopping the structure. For structures included in paragraph (a) of this subsection, the probable maximum precipitation event shall be used to determine the freeboard hydrograph;

3. The conduit shall be large enough to meet the requirements under 401 KAR 4:030 for minimum emergency spillway discharge capacity; and

4. The spillway shall meet all other applicable requirements under 401 KAR 4:030, 405 KAR 16:100, and this administrative regulation, except the requirement under 401 KAR 4:030 that the conduit have a minimum cross-sectional area of thirty-six (36) square feet. The cross-sectional area of the barrel of the conduit shall be not less than twelve (12) square feet for a Class A structure with a product of storage in acre-feet times effective height in feet of less than 10,000 and shall be not less than twenty (20) square feet for other structures.

(c) The design freeboard between the lowest point on the dam or impoundment crest and the maximum water elevation shall be at least three (3) feet. For structures not included in paragraph (a) of this subsection, the maximum water elevation shall be that determined by the freeboard hydrograph criteria for the appropriate structure hazard classification under 405 KAR 7:040, Section 5, and 401 KAR 4:030.

(d) The dam or impoundment shall have a minimum safety factor of one and five-tenths (1.5) for the normal pool with steady seepage saturation conditions, and the seismic safety factor shall be at least one and two-tenths (1.2).

(e) The dam or impoundment foundation and abutments shall be designed to be stable under all conditions of construction and operation of the impoundment. Sufficient foundation investigations and laboratory testing shall be performed to determine the safety factors of the dam or impoundment for all loading conditions required in paragraph (d) of this subsection or 405 KAR 16:100 and for all increments of construction.

(2) Spillways and outlet works shall be designed to provide adequate protection against erosion and corrosion. Inlets shall be protected against blockage.

(3) Dams or impoundments constructed of or impounding coal mine waste shall be designed so that at least ninety (90) percent of the water stored during the design precipitation event can be removed within a ten (10) day period.

Section 4. Operation. For a dam or impoundment constructed of or impounding coal mine waste, at least ninety (90) percent of the water stored during the design precipitation event shall be removed within the ten (10) day period following the design precipitation event. (8 Ky.R. 1547; eff. 1-6-83; Am. 24 Ky.R. 723; 2663; eff. 6-10-98.)